

## CLAIMS

What is claimed is:

1. An air-conditioned helmet apparatus, comprising:

a rigid helmet shell including a first opening of such dimensions as to permit receipt onto the head of a wearer and a second opening in a rear wall;

multi-layer means secured to an interior surface of the helmet shell

5 constructed of materials enabling air to pass therealong and empty directly onto the face of a wearer;

an electrically powered heat pump for producing a pressurized stream of temperature conditioned air mounted to an outside rear surface of the helmet shell to direct the conditioned air stream through the second opening into the multi-  
10 layer means.

2. An air-conditioned helmet apparatus as in claim 1, in which the multi-layer means includes a first layer of an impact resistant material adhered to a helmet shell interior surface, and a second layer contacting the first layer constructed of a tubular textile material allowing air to pass readily therealong in a  
5 direction generally from back to front of the helmet shell.

3. An air-conditioned helmet apparatus as in claim 2, in which a third layer constructed of an open-cell foam is provided secured onto an outer surface of the second layer.

4. An air-conditioned helmet apparatus as in claim 1, in which the heat pump is a thermoelectric heat pump.

5. An air-conditioned helmet apparatus as in claim 1, in which the heat pump is a Stirling cycle device.

6. An air-conditioned helmet apparatus as in claim 1, in which electric cabling has one end connected to the heat pump and extends downwardly along a gravity path for connection at its other end to a suitable source of electric power.

7. An air-conditioned helmet apparatus as in claim 2, in which the tubular textile material includes woven tubes interwoven with each other which do not compress more than 5 percent during wearing use of the helmet shell.

8. An air-conditioned helmet apparatus as in claim 1, in which the helmet apparatus is adaptable for wearing while driving a motorcycle at which time the electric cabling other end is interconnected with an electric energy source carried by the motorcycle.

9. An air-conditioned helmet apparatus as in claim 1, in which the electrically powered heat pump has an air inlet end and an air filter interrelates the air inlet end with ambient air.

10. An air-conditioned helmet apparatus as in claim 1, in which there is further provided an air scoop secured to an outer surface of the helmet shell protectively covering the heat pump and for receiving air and directing it to the heat pump.

11. An air-conditioned helmet apparatus as in claim 10, in which the scoop has a central wall and two sidewalls integral with the central wall and forming two open ends, the sidewalls being secured to the outer surface of the helmet shell so that the open ends are located in respective front and back relative positions.

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12. An air-conditioned helmet apparatus as in claim 10, in which the heat pump is affixed to the helmet shell via compliant means.

13. An air-conditioned helmet apparatus as in claim 12, in which the heat pump is mounted onto the outer surface of the helmet shell via first and second spaced apart compliant means.

14. An air-conditioned helmet apparatus as in claim 1, in which an elongated sealing means is secured about the multi-layer structure adjacent the lower rear edge of the helmet shell preventing conditioned air escaping from the structure lower rear edge.

15. An air-conditioned helmet apparatus as in claim 1, in which the heat pump includes a single blower mechanism moving a first part of pressurized air over the "cold" place of the pump to the helmet shell interior when cooling is the conditioning mode, and simultaneously moving a second part of the  
5 pressurized air past the "hot" place of the pump to the exterior ambient.

16. An air-conditioned helmet apparatus as in claim 1, in which the heat pump includes two blower mechanisms, a first mechanism for moving conditioned air to the helmet interior and a second mechanism for moving waste heat or waste cold, as the case may be, to the ambient exterior of the helmet shell.

17. Air-conditioned helmet apparatus for use while driving a vehicle, comprising:

a rigid helmet shell shaped for fitting receipt onto the head of a wearer;  
layer means affixed to an interior surface of the helmet shell including a  
5 plurality of tubular means conforming to the helmet shell interior surface and extending forwardly to terminate generally in the forehead region of the helmet shell with open ends directed toward the face of a wearer;

a thermoelectric heat pump fixedly located exteriorly of the helmet shell  
for generating a pressurized stream of conditioned air; and

10           a conduit interconnecting the heat pump and the layer means whereby  
conditioned air modifies a wearer's head temperature by convection and a  
wearer's face by direct contact with the conditioned air.

18.   Air-conditioned helmet apparatus as in claim 17, in which a textile  
sheet covers the outwardly directed surface of the layer means.

19.   Air-conditioned helmet apparatus as in claim 17, in which the  
conduit extends under a lower edge of the helmet shell to the layer means.

20.   Air-conditioned headgear for wear by a patient, comprising:

a cap for close-fitting receipt onto the head of a patient;

5           layer means affixed to an inside surface of the cap including a plurality  
of textile tubes in side-by-side relation extending forwardly from the rear of the  
cap to terminate generally in the forehead region of the patient with open ends  
directed across the face of the patient;

a heat pump located exteriorly of the cap for generating a pressurized  
stream of conditioned air; and

10           a flexible conduit interconnecting the heat pump and the layer means  
whereby conditioned air modifies the patient's head temperature by conduction  
and the face by direct contact with the conditioned air.

21. (new) Air conditioned headgear comprising:

a tubular textile material layer formed in the shape of a cap and enabling air to pass therealong generally from front to back of the cap and empty directly into the face of a wearer; and,

an electrically-powered heat pump for producing a pressurized stream of temperature conditioned air connected to the tubular textile layer to direct the conditioned air therealong;

whereby the conditioned air modifies a wearer's head temperature and a wearer's face temperature by direct contact with the conditioned air.

22. (new) The air-conditioned headgear of claim 21 wherein the heat pump is located remote from the headgear.